APPENDIX C LOGPLOT SONIC BORING LOGS

Sheet 1 of 1

Project: CQAP Modification 1 - Jorgensen Forge EAA	Estimated Mudline Elevation (feet, MLLW): -5.4	Method/Core Diameter: Sonic / 6"
Project #: 080224-01.02	Tidal Elevation (MLLW): 9.1	Penetration Depth (ft): 15.0
Client: Earle M. Jorgensen Corporation	Water Depth (ft): 14.5	Field Recovery Length (ft): 11.5
Contractor: Cascade Drilling	Northing: 195624.55 Easting: 1275828.42	Collection Date: 2/10/2016
Location: Tukwila, WA	Horizontal Datum: NAD 83 WA State Plane North, feet	Process Date: 2/10/2016
Vessel: Versatile Workhorse Barge	Vertical Datum: MLLW	Logged By: EM

- 1	Contr	actor: C	ascade Drilling		Northing: 195624.55	Easting: 1275828.42	Collection Date: 2/10/2016	
	Locati	on: Tul	kwila, WA		Horizontal Datum: NAD 83 W	/A State Plane North, feet	Process Date: 2/10/2016	
	Vesse	l: Versa	tile Workhorse Barge		Vertical Datum: MLLW		Logged By: EM	
Ī						Sediment Descri	ntion	
	Recov Dep		Sample	Chemical Analysis	Samples	and Descriptions are in Recov Scheme: USC	ered Depths. Classification	Recovered Interval
JJI/Anchor/Projects/Duwamish River/Jorgensen Forge Corporation/EMJ/Remedy Implementation/OMMP/Addendum #2/Field Sampl	Dep	control contro	JF-PDS-1-0-1ft-160210 JF-PDS-1-1-2ft-160210		0-2.2 ft: WELL-GRADED GRAV coarse gravel, 15% coarse sar 2.2 - 2.5 ft: Grades to unit development of the coarse surface 2.5 - 2.9 ft: SILTY SAND (SM),	Scheme: USC /EL WITH SAND (GW), moist, mod, trace fines. [BACKFILL] scribed at 2.5 ft. wet, loose, dark gray, 80% me		
\Anchor\Projects\Duwamish	- 13 - - - - 14 - - - 15	- - - - - - - - - - - - - - - - - - -						

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Notes: 1. Core collected 10 feet from target location on Attempt 4.

2. The post-dredge surface is defined as the point of contact between the placed shoreline containment filter material or in-water backfill material and underlying material as described in Section 2.3 of CQAP Modification No. 1.

Calculated Recovery

Recovery Length/Penetration Depth:

Sheet 1 of 1

Project: CQAP Modification 1 - Jorgensen Forge EAA	Estimated Mudline Elevation (feet, MLLW): -8.1	Method/Core Diameter: Sonic / 6"
Project #: 080224-01.02	Tidal Elevation (MLLW): 12.9	Penetration Depth (ft): 15.0
Client: Earle M. Jorgensen Corporation	Water Depth (ft): 4.8	Field Recovery Length (ft): 11.3
Contractor: Cascade Drilling	Northing: 195511.49 Easting: 1275851.77	Collection Date: 2/10/2016
Location: Tukwila, WA	Horizontal Datum: NAD 83 WA State Plane North, feet	Process Date: 2/10/2016
Vessel: Versatile Workhorse Barge	Vertical Datum: MLLW	Logged By: EM

Lo	ocati	on: Tul	cwila, WA		Horizontal Datum: NAD 83 WA State Plane North, feet	Process Date: 2/10/2016	
V	esse	l: Versa	tile Workhorse Barge		Vertical Datum: MLLW	Logged By: EM	
Re	Dep	ered oth	Sample	Chemical Analysis	Sediment Description Samples and Descriptions are in Recovered Depths. Classification Scheme: USCS		Recovered Interval
	-1 -2 -3 -4 -5		JF-PDS-2-0-1ft-160210 JF-PDS-2-1-2ft-160210 JF-PDS-2-2-3ft-160210	PCBs, Metals, TS/TOC, Grain Size PCBs, Metals, TS/TOC, Grain Size Archive	0 - 4.2 ft: WELL-GRADED GRAVEL WITH SAND (GW), moist, to coarse gravel, 20% coarse sand, 5% fines. [BACKFILL] @1.7 ft: grades to 80% fine to coarse gravel, 20% coarse sand, 5% fit: grades to unit described at 4.2 ft. POST-DREDGE SURFACE 4.2 - 8.2 ft: POORLY GRADED SAND (SP), moist, medium der dark gray, white, orange, red.	nd, trace fines.	
orporation\EMJ\Remedy Implementation\O	-9 -10	- 260 - 280 - 300 - 320			8.2 - 9.4 ft: SILTY SAND (SM), moist, medium dense, dark grifines. 9.4 - 11.3 ft: CLAYEY SILT (ML/CL), moist, medium stiff, dark		
JJI/Anchor\Projects\Duwamish River\Jorgensen Forge Corporation\EMJ\Remedy Implementation\OMMP\Addendum #2\Field Sampl	- 12 - 13 - 14	- 340 - 360 - 380 - 400 - 420 - 440			End of core @11.3 ft.		

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Notes: 1. Core collected 5 feet from target location on Attempt 1.

2. The post-dredge surface is defined as the point of contact between the placed shoreline containment filter material or in-water backfill material and underlying material as described in Section 2.3 of CQAP Modification No. 1.

Calculated Recovery

Recovery Length/Penetration Depth:

Sheet 1 of 1

Project: CQAP Modification 1 - Jorgensen Forge EAA	Estimated Mudline Elevation (feet, MLLW): -6.6	Method/Core Diameter: Sonic / 6"
Project #: 080224-01.02	Tidal Elevation (MLLW): 6.6	Penetration Depth (ft): 15.0
Client: Earle M. Jorgensen Corporation	Water Depth (ft): 13.2	Field Recovery Length (ft): 8.6
Contractor: Cascade Drilling	Northing: 195464.87 Easting: 1275896.53	Collection Date: 2/11/2016
Location: Tukwila, WA	Horizontal Datum: NAD 83 WA State Plane North, feet	Process Date: 2/11/2016
Vessel: Versatile Workhorse Barge	Vertical Datum: MLLW	Logged By: EM

Client: Earle M. Jorgensen Corporatio	n	Water Depth (ft): 13.2	Field Recovery Length (ft): 8.6
Contractor: Cascade Drilling		Northing: 195464.87 Easting: 1275896.53	Collection Date: 2/11/2016
Location: Tukwila, WA		Horizontal Datum: NAD 83 WA State Plane North, feet	Process Date: 2/11/2016
Vessel: Versatile Workhorse Barge		Vertical Datum: MLLW	Logged By: EM
Recovered Sample Depth ft cm	Chemical Analysis	Sediment Descri Samples and Descriptions are in Recov Scheme: USC	vered Depths. Classification
The control of the	PCBs, Metals, TS/TOC, Grain Size PCBs, Metals, TS/TOC, Grain Size Archive	0 - 0.7 ft: POORLY GRADED GRAVEL WITH COBBLES (GP), m gravel, trace fines. Cobble is subangular up to 4 inches. Gr 0.7 - 4.2 ft: WELL-GRADED GRAVEL WITH SAND (GW), mois 75% fine to coarse gravel, 20% coarse sand, 5% fines. [BACC	edium dense, dark gray, 100% medium sand.

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2. The post-dredge surface is defined as the point of contact between the placed shoreline containment filter material or in-water backfill material and underlying material as described in Section 2.3 of CQAP Modification No. 1. **Calculated Recovery**

Recovery Length/Penetration Depth:

Sheet 1 of 1

Project: CQAP Modification 1 - Jorgensen Forge EAA	Estimated Mudline Elevation (feet, MLLW):-21.3	Method/Core Diameter: Sonic / 6"
Froject. COAF Modification 1 - Jorgensen Forge LAA	Estimated Mudaline Elevation (reet, MELW)21.3	Wethou/core Diameter. Some / 0
Project #: 080224-01.02	Tidal Elevation (MLLW): 8.8	Penetration Depth (ft): 10.0
Client: Earle M. Jorgensen Corporation	Water Depth (ft): 30.1	Field Recovery Length (ft): 11.0
Contractor: Cascade Drilling	Northing: 195311.36 Easting: 1275864.72	Collection Date: 2/10/2016
Location: Tukwila, WA	Horizontal Datum: NAD 83 WA State Plane North, feet	Process Date: 2/10/2016
Vessel: Versatile Workhorse Barge	Vertical Datum: MLLW	Logged By: EM
	Sediment Descri	otion

Con	tractor: C	Cascade Drilling		Northing: 195311.36 Easting: 1	1275864.72	Collection Date: 2/10/2016	
Loca	ition: Tul	kwila, WA		Horizontal Datum: NAD 83 WA State Plane	North, feet	Process Date: 2/10/2016	
Vess	el: Versa	tile Workhorse Barge		Vertical Datum: MLLW		Logged By: EM	
				Se	diment Descri	ption	
De	overed epth cm	Sample	Chemical Analysis			ered Depths. Classification	Recovered Interval
	epth cm	JF-PDS-4-0-1ft-160210 JF-PDS-4-1-2ft-160210		0 - 0.3 ft: SILT WITH SAND (ML), wet, soft, of 0.3 - 1.9 ft: WELL GRADED GRAVEL WITH SI fine to coarse gravel, 20% medium to coarse [BACKFILL] @1.5 ft: grades to unit described at 1.9 ft. 1.9 - 2.9 ft: POORLY GRADED SAND (SP), more fines. Trace organics (wood fragments, stice)	dark gray, 80% fi	nes, 20% fine sand. SW-GM), moist, loose, multicolored/dark gray, 70% es. Trace organics (wood fragments, sticks).	Recovered Recovered Interval

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Notes: 1. Core collected 3 feet from target location on Attempt 1.

2. The post-dredge surface is defined as the point of contact between the placed shoreline containment filter material or in-water backfill material and underlying material as described in Section 2.3 of CQAP Modification No. 1.

Calculated Recovery

Recovery Length/Penetration Depth:

Sheet 1 of 1

Project: CQAP Modification 1 - Jorgensen Forge EAA	Estimated Mudline Elevation (feet, MLLW): -1.9	Method/Core Diameter: Sonic / 6"
Project #: 080224-01.02	Tidal Elevation (MLLW): 6.3	Penetration Depth (ft): 15.0
Client: Earle M. Jorgensen Corporation	Water Depth (ft): 8.2	Field Recovery Length (ft): 0-5ft: See Note 2, 5-15ft: 15.2
Contractor: Cascade Drilling	Northing: 195364.06 Easting: 1275939.65	Collection Date: 2/11/2016
Location: Tukwila, WA	Horizontal Datum: NAD 83 WA State Plane North, feet	Process Date: 2/11/2016
Vessel: Versatile Workhorse Barge	Vertical Datum: MLLW	Logged By: EM
	Sediment Descri	ption

Location	: Tukwila, WA		Horizontal Datum: NAD 83 WA State Plane North, feet	Process Date: 2/11/2016
Vessel: V	ersatile Workhorse Barge		Vertical Datum: MLLW	Logged By: EM
Recovere Depth ft cm	Sample	Chemical Analysis	Sediment Descriptions are in Recover Scheme: USCS	ered Depths. Classification
-1 -	20 40		0 - 2 ft: RIPRAP/COBBLE. Moist, loose, gray, 100% riprap an (See Note 2)	d cobble. Subangular up to 0.7 ft. [BACKFILL]
	60 80 100 120 140		2.0 - 5.0 ft: WELL-GRADED GRAVEL (GW). Moist, medium de Gravel is subrounded up to 3 inches. [BACKFILL] (See Note 2)	
	160		5.0 - 6.0 ft: POORLY GRADED GRAVEL WITH COBBLE (GP), m cobble. Gravel is subrounded up to 2 inches. Cobble is sub-	ioist, loose, multicolored, 50% coarse gravel, 50% angular up to 4 inches. [BACKFILL]
	200		6.0 - 8.4 ft: WELL GRADED GRAVEL WITH SAND (GW), Moist gravel, 20% coarse sand, trace fines. [BACKFILL]	, medium dense, multicolored, 80% fine to coarse
	240		8.1 - 8.4 ft: grades to unit described at 8.4 ft.	
- -9	260 JF-PDS-5-0-1ft-160211 280	PCBs, Metals, TS/TOC, Grain Size	POST-DREDGE SURFACE 8.4 - 9.0 ft: Stratified layers of CLAYEY SILT (ML/CL) and SILT CL/ML: moist, soft, dark gray, 100% fines. Fines hav SM: moist, medium dense, dark gray, 80% fine sand	ve medium plasticity.
10	300 JF-PDS-5-1-2ft-160211	PCBs, Metals, TS/TOC, Grain Size	9.0 - 14.8 ft: POORLY GRADED SAND (SP), moist, medium de	
- 11	320 JF-PDS-5-2-3ft-160211 340	PCBs, Metals, TS/TOC, Grain Size		
- 12 - 12	360			
- - - 13	380 400			
- - - - 14	420			
	440		@14.2 ft: one 6 inch wood fragment (cedar-like).	
15	460		14.8 - 15.2 ft: SILTY SAND (SM), moist, dense, gray, 80% fine	e sand, 20% fines.
16	480		End of core @15.2 ft.	

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2. The sediment description from 0 - 5 ft is approximate due to difficulty extruding coarse material

2. The seamlers (described minds of strangers) approximate due to dimensive straining coarse material into plastic liners. The 0 - 5 ft interval was extruded into a 5-gallon container for observations.

3. The post-dredge surface is defined as the point of contact between the placed shoreline containment filter material or in-water backfill material and underlying material as described in Section 2.3 of CQAP Modification No. 1.

Calculated Recovery

Recovery Length/Penetration Depth:

0-5ft: See Note 2, 5-15ft: 101%

Sheet 1 of 1

Project: CQAP Modification 1 - Jorgensen Forge EAA	Estimated Mudline Elevation (feet, MLLW): -9.5	Method/Core Diameter: Sonic / 6"
Project #: 080224-01.02	Tidal Elevation (MLLW): 10.8	Penetration Depth (ft): 15.0
Client: Earle M. Jorgensen Corporation	Water Depth (ft): 20.3	Field Recovery Length (ft): 10.5
Contractor: Cascade Drilling	Northing: 195180.23 Easting: 1275927.38	Collection Date: 2/9/2016
Location: Tukwila, WA	Horizontal Datum: NAD 83 WA State Plane North, feet	Process Date: 2/9/2016
Vessel: Versatile Workhorse Barge	Vertical Datum: MLLW	Logged By: EM

	tor: Cascade Drilling		Nortning: 195180.23 Easting: 12/592/.38	Collection Date: 2/9/2016	
Location	n: Tukwila, WA		Horizontal Datum: NAD 83 WA State Plane North, feet	Process Date: 2/9/2016	
Vessel: \	Versatile Workhorse Barge		Vertical Datum: MLLW	Logged By: EM	
vessei. v	versattie workhorse barge				Т
			Sediment Descri	ption	
Recover	tition: Tukwila, WA sel: Versatile Workhorse Barge overed Sample Chemical Analysis cm Chemical Analysis cm Chemical Analysis cm PCBS, Metals, TS/TOC, Grain Size TS/TOC, Grain Size PCBS, Metals, TS/TOC, Grain Size TS/TOC, Grain Size Archive Archive TS/TOC, Grain Size	Samples and Descriptions are in Recov			
Depth	ו	Analysis	Scheme: USC	S	
-° E'	0		0 - 0.5 ft: POORLY GRADED GRAVEL (GP), moist, loose, mult	icolored, 100% coarse gravel, trace fines. Gravel is	\downarrow
: E	- 20		subrounded up to 2 inches. [BACKFILL]		
			0.5 - 2.2 ft: WELL GRADED GRAVEL WITH SAND (GW), moist	Loose multicolored 85% fine to coarse gravel	
- F	- 40		15% coarse sand, trace fines. Gravel is subrounded up to 2		
-					
- -2 -	- 60				
-					- 3
-	- 80		2.2 - 4.0 ft: WELL GRADED GRAVEL WITH SILT AND SAND (C fine to coarse gravel, 20% coarse sand, 10% fines. Gravel is		
- -3 -	PCBs, Met Ts/ToC, Grai 220 JF-PDS-6-1-2ft-160209 JF-PDS-6-2-3ft-160209 JF-PDS-6-2-3ft-160209 JF-PDS-6-2-3ft-160209 Archive 380 380 380 380 380 400		inite to source graver, 20% course suita, 20% inites. Graver is	sasiounded up to 2 monest [stronul2]	
:	100				
- F	ion: Tukwila, WA de: Versatile Workhorse Barge Vered Sample Chemical Analysis cm Chemical Analysis PCBs, Metals, TS/TOC, Grain STS/TOC, Gra		@3.6 ft: grades to unit described at 4.0 ft.		
- ₄ [-	120		estates to unit described at 4.0 ft.		
: -			4.2 - 5.2 ft: SILTY SAND WITH GRAVEL (SM), Moist, medium	dense dark gray 60% medium sand 25% fine to	- :
: -	140		coarse gravel, 15% fines. Grades to unit described at 5.2 ft.		
-5					
: -	160		POST-DREDGE SURFACE		
- -	- 180		5.2 - 10.5 ft: POORLY GRADED SAND (SP), moist, medium do	ense, dark gray, 100% medium sand, trace fines.	
-6	180	.5, .55, 614111 5126	Sand grains are dark gray, red, white.		
:	200				
: F	JF-PDS-6-1-2ft-160209				
-7 E	. 220		@7.0 ft: grades to 100% medium sand.		
-	220				
- -	JF-PDS-6-2-3ft-160209	Archive			1
-8 -					•
:	- 260				
- -9					1
	- 280				1
: E					
- - 10	300		@9.7 ft: grades to 100% fine sand, trace fines.		,
- "					
- -	320				
- 11			End of core @10.5 ft.		
:	340				
·	260				
- 12	. 200				
: [- 380				
: E	300				
- 13	- 400				
:					
: <u> </u>	- 420				
- 14	-				
: <u> </u>	- 440				
:					
15 -		1			
^	% ANCHOR	Notes: 1. Core co	ollected 1 foot from target location on Attempt 5.	Calculated Recovery	

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2. The post-dredge surface is defined as the point of contact between the placed shoreline containment filter material or in-water backfill material and underlying material as described in Section 2.3 of CQAP Modification No. 1. **Calculated Recovery**

Recovery Length/Penetration Depth:

Sheet 1 of 1

Project: CQAP Modification 1 - Jorgensen Forge EAA	Estimated Mudline Elevation (feet, MLLW): 5.5	Method/Core Diameter: Sonic / 6"
Project #: 080224-01.02	Tidal Elevation (MLLW): 13.3	Penetration Depth (ft): 25.0
Client: Earle M. Jorgensen Corporation	Water Depth (ft): 7.8	Field Recovery Length (ft): 21.8 (See Note 2)
Contractor: Cascade Drilling	Northing: 195786.90 Easting: 1275766.59	Collection Date: 2/12/2016
Location: Tukwila, WA	Horizontal Datum: NAD 83 WA State Plane North, feet	Process Date: 2/12/2016
Vessel: Versatile Workhorse Barge	Vertical Datum: MLLW	Logged By: EM

	Location: Tu	wila, WA		Horizontal Datum: NAD 83 WA State Plane North, feet	Process Date: 2/12/2016
Vessel: Versatile Workhorse Barge			Vertical Datum: MLLW	Logged By: EM	
	Recovered Depth ft cm	Sample	Chemical Analysis	Sediment Description Samples and Descriptions are in Recovered Depths. Classification Scheme: USCS	
n #2\Field Sampl	F0 F			0 - 1.5 ft: POORLY GRADED GRAVEL WITH COBBLE (GP), moist, loose, multicolored, 50% coarse gravel, 50% cobble, trace fines. Cobble is subangular up to 6 inches. Gravel is subrounded up to 2 inches. [BACKFILL] 1.5 - 5.5 ft: POORLY GRADED GRAVEL (GP), moist, loose, multicolored, 100% coarse gravel, trace fines. Gravel is subrounded up to 2.5 inches. [BACKFILL] 5.5 - 12.4 ft: WELL GRADED GRAVEL WITH SAND (GW), moist, medium dense, multicolored and gray/brown, 75% fine to coarse gravel, 20% coarse sand, 5% fines. [BACKFILL]	
dendu	12 360			@12.2 ft: grades to unit described at 12.4 ft.	
MMP\Add	13 400	JF-PDS-7-0-1ft-160212	PCBs, Metals, TS/TOC, Grain Size	POST-DREDGE SURFACE 12.4 - 21.8 ft: POORLY GRADED SAND (SP), moist, medium dense, dark gray, 100% medium sand, trace fines. @15.0 ft: grades to 100% medium sand.	
\EMJ\Remedy Implementation\C	14 420 440 15 460 - 480 - 16 500 - 17 520	JF-PDS-7-1-2ft-160212 JF-PDS-7-2-3ft-160212	PCBs, Metals, TS/TOC, Grain Size PCBs, Metals, TS/TOC, Grain Size		
JJI\Anchor\Projects\Duwamish River\Jorgensen Forge Corporation\EMJ\Remedy Implementation\OMMP\Addendum #2\Field Sampl	- 18			@20.1 ft: grades to 95% fine sand, 5% fines. Trace organics End of core @21.8 ft.	s (stick).

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Notes: 1. Core collected 5 feet from target location on Attempt 1.

Coarse material from approximately 2-5 ft was lost from bottom of core barrel during retrieval.

3. The post-dredge surface is defined as the point of contact between the placed shore line containment filter material or in-water backfill material and underlying material as described in Section 2.3 of CQAP Modification No. 1.

Calculated Recovery

Recovery Length/Penetration Depth: